

PATENT COOPERATION TREATY
PCT
INTERNATIONAL SEARCH REPORT
(PCT Article 18 and Rules 43 and 44)

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Applicant's or agent's file reference 12180502/VPA/l	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/AU2004/000775	International filing date (<i>day/month/year</i>) 10 June 2004	(Earliest) Priority Date (<i>day/month/year</i>) 10 June 2003
Applicant THE UNIVERSITY OF MELBOURNE et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 7 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II).

3. ☒ Unity of invention is lacking (See Box No. III).

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☒ none of the figures is to be published with the abstract.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See Supplemental Box

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest



The additional search fees were accompanied by the applicant's protest.



No protest accompanied the payment of additional search fees.

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A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: C07K 14/02; C07K 7/00; C12 N 5/00; A61K 38/00; A61P 37/00; 31/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

SEE BELOW

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SEE BELOW

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

STN (Medline; CA; WPIDS; Biosis): overlap; partial; peptide; hiv or lymphocyte or T cell; antigen presenting cell

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,Y	WO 2002062375, A (MERCK PATENT GMBH et al) 15.08.2002; see Table 1; claim 21	1-43
X	WO 2001040281, A (THROMB-X NV et al) 07.06.2001; see claim 1	1-43
X	WO 2001019408, A (ZYCOS INC ET AL) 22.03.2001; see claims	1-43
X	WO 2001016163, A (EURODIAGNOSTICA AB) 08.03.2001; see p3	1-43

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
22 July 2004

Date of mailing of the international search report

29 JUL 2004

Name and mailing address of the ISA/AU

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INTERNATIONAL SEARCH REPORT

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2001007625, A (CORNELL RESEARCH FOUNDATION, INC ET AL) 01.02.2001; see claims	1-43
X	WO 1994003487, A (ZAGURY J-K) 17.02.1994; see abstract; claims	1-43
X,Y	J Immunological Methods 255, pp 27-40 (2001) MAECKER et al "Use of overlapping peptide mixtures as antigens for cytokine flow cytometry"; see abstract	1-43
X,Y	Vaccine 21, pp 761-767 (Jan 30, 2003) CHOI et al "Functional mapping of protective epitopes within the rotavirus VP6 protein in mice belonging to different haplotypes"; see abstract	1-43
X	Protein Engineering 16, pp 311-317 (April 2003) TRIVEDI et al "The LLSGIV stretch of the N-terminal region of HIV-1 gp41 is critical for binding to a model peptide, T20"; see abstract	1-43
X	Vaccine 20, pp 3685-3694 (2002) DRABNER et al "Identification of T helper cell-recognised epitopes in the chitinase of the filarial nematode <i>Onchocerca volvulus</i> "; see abstract	1-43
X	J Acquired Immune Deficiency Syndromes 6, pp 881-890 (1993) BLAZEVIC et al "Helper T-cell recognition of HIV-1 Tat synthetic peptides"; see abstract	1-43
X	Clin Exp Immunol 104, pp 394-397 (1996) MARTTILA et al "Definition of three minimal T helper cell epitopes of rubella virus E1 glycoprotein"; see figure 2; abstract	1-43
X	J General Virology 77, pp 1659-1665 (1996) VAN BAALEN et al "Fine-specificity of cytotoxic T lymphocytes which recognize conserved epitopes of the Gag protein of human immunodeficiency virus type 1"; see abstract	1-43
X	J Biol Chem 273, pp 15895-15900 (1998) ALBINI et al "Identification of a novel domain of HIV Tat involved in monocyte chemotaxis"; see p 15895; abstract	1-43
X,Y	Vaccine 12, pp 117-128 (1994) WENTWORTH et al "Epitopes recognized by HIV-SF2 nef-specific CD4+ T-cell clones generated from HIV-1-uninfected donors"; see p 117; abstract	1-43
X	J Virology 73, pp 4257-4265 (1999) LONNING et al "Gag protein epitopes recognized by CD4+ T-helper lymphocytes from equine infectious anemia virus-infected carrier. horses"; see p 4257	44-52

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C (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2002036748, A (NEXELL THERAPEUTICS, INC et al) 10.05.2002 ; see p13	44-52
X	AIDS 7, pp 781-786 (1993) VAN BAALEN et al "Selective <i>in vitro</i> expansion of HLA class I-restricted HIV-1 Gag-specific CD8+ T cells: cytotoxic T-lymphocyte epitopes and precursor frequencies"; see p 782	44-52
X	Thromb Haemost 87, pp 666-73 (2002) WARMERDAM et al "Elimination of a human T-cell region in Staphylokinase by t-cell screening and computer modeling"; see p667; Figures	44-52
P,X	Current Drug Targets 5, pp 71-88 (2004) STRATOV et al "Vaccines and vaccine strategies against HIV"; see whole document	1-43
X,Y	J Virology 76, pp 2298-2305 (2002) EDWARDS et al "Magnitude of functional CD8+ T-cell responses to the Gag protein of human immunodeficiency virus type 1 correlates inversely with viral load plasma"; see abstract	1-43

Supplemental Box

(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No:III

The present invention constitutes multiple inventions as follows:

Invention 1: Claims 1-43 relate to use of at least one set of polypeptides in the preparation of a medicament for modulating an immune response comprising different portions of an amino acid sequence corresponding to a single polypeptide of interest and display partial sequence identity or similarity to at least one other peptide of the same set of peptides, and methods and compositions thereof.

Invention 2: Claims 44-52 relate to use of uncultured antigen-presenting cells or their precursors in the preparation of a medicament.

There does not appear to be a common special technical feature that can be said to unite the two inventions. The common partial sequences are distinct features of Invention 1. These features are not recited in Invention 2. The only remote similarity of these inventions relate to the subject matter of immune system. However, this broad connection does not unite the two inventions.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
WO	2002062375	BR	0207014	BR	0207015
		BR	0207017	BR	0207018
		BR	0207281	CA	2437214
		CA	2437265	CA	2437270
		CA	2437287	CA	2438513
		EP	1357933	EP	1357934
		EP	1360201	EP	1361893
		EP	1387856	EP	1392731
		HU	0303173	HU	0303199
		HU	0400700	HU	0400703
		US	2004063634	US	2004063917
		US	2004072291	US	2004076991
		WO	02062832	WO	02062833
		WO	02062843	WO	02066058
		WO	02077034		
WO	2001040281	AU	23633/01	EP	1252183
WO	2001019408	AU	75891/00	CA	2384987
WO	2001016163	AU	79031/00	EP	1206278
WO	2001007625	AU	62257/00	BR	0012556
		CZ	20020601	EP	1210438
WO	1994003487	AU	47129/93	EP	0656010
		FR	2694938	FR	2694560
WO	2002036748	AU	18019/02		
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.					
END OF ANNEX					